WHAT IS CLAIMED IS:

1. A process for preparing a thermosensitive polymer comprising polymerizing a microemulsion comprising a first monomer that is capable of forming a thermosensitive polymer and a polymerizable surfactant.

2. The process of claim 1 wherein the first monomer is an acrylamide derivative.

3. The process of claim 2 wherein the first monomer is an alkylated acrylamide.

4. The process of claim 3 wherein the first monomer is *N*-isopropylacrylamide.

5. The process of claim 4 wherein the polymerizable surfactant is ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate or fluronic68-diacrylate.

6. The process of claim 5 wherein the microemulsion comprises a comonomer.

7. The process of claim 6 wherein the microemulsion comprises methyl methacrylate or 2-hydroxyethyl methacrylate.

8. The process of claim 7, wherein the polymerizable surfactant is ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate and the microemulsion further comprises a chemical cross-linker.

9. The process of claim 8, wherein the cross-linker is EGDMA.

10. The process of claim 9, wherein the microemulsion further comprises a photo-initiator.

11. The process of claim 10, wherein the photo-initiator is 2,2-dimethoxy-2-phenylacetophenone.

12. The process of claim 11, wherein the polymerizing comprises subjecting the microemulsion to ultraviolet radiation.

13. The process of claim 12 comprising the step of preparing a layer of microemulsion of a desired thickness prior to polymerization.

14. The process of claim 13, wherein the microemulsion comprises about 20 % (w/w) *N*-isopropylacrylamide, about 10% (w/w) methyl methacrylate, about 10 % (w/w) 2-hydroxyethyl methacrylate, about 35 % (w/w) ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, about 23% (w/w) water and about 2% ethylene glycol dimethacrylate.

15. The process of claim 13, wherein the microemulsion comprises about 10 % (w/w) *N*-isopropylacrylamide, about 10% (w/w) methyl methacrylate, about 20 % (w/w) 2-hydroxyethyl methacrylate, about 35 % (w/w) ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, about 23% (w/w) water and about 2% ethylene glycol dimethacrylate.

16. The process of claim 13, wherein the microemulsion comprises about 7.5 % (w/w) *N*-isopropylacrylamide, about 7.5 % (w/w) methyl methacrylate, about 15 % (w/w) 2-hydroxyethyl methacrylate, about 35 % (w/w) ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, about 33% (w/w) water and about 2% ethylene glycol dimethacrylate.

17. The process of claim 13, wherein the microemulsion comprises about 10 % (w/w) *N*-isopropylacrylamide, about 20 % (w/w) methyl methacrylate, about 10 % (w/w) 2-hydroxyethyl methacrylate, about 35 % (w/w) ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, about 23% (w/w) water and about 2% ethylene glycol dimethacrylate.

18. The process of claim 13, wherein the microemulsion comprises about 25 % (w/w) *N*-isopropylacrylamide, about 10 % (w/w) methyl methacrylate, about 5 % (w/w) 2-hydroxyethyl methacrylate, about 35 % (w/w) ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, about 23% (w/w) water and about 2% ethylene glycol dimethacrylate.

19. The process of claim 13, wherein the microemulsion comprises about 30 % (w/w) *N*-isopropylacrylamide, about 10 % (w/w) 2-hydroxyethyl methacrylate, about 35 % (w/w) ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, about 23% (w/w)

water and about 2% ethylene glycol dimethacrylate.

20. The process of claim 13, wherein the microemulsion comprises about 10 % (w/w) *N*-isopropylacrylamide, about 25 % (w/w) methyl methacrylate, about 5 % (w/w) 2-hydroxyethyl methacrylate, about 35 % (w/w) ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, about 23% (w/w) water and about 2% ethylene glycol dimethacrylate.

21. A method of dressing and undressing a wound comprising:

applying a thermosensitive polymer to a wound;

immediately prior to removing the polymer from the wound, reducing the temperature of thermosensitive polymer to facilitate removal of the polymer; and

removing the polymer from the wound.

22. A method of delivering a therapeutic agent to a wound comprising:

incorporating a therapeutic agent into a thermosensitive nanoporous polymer; and

applying the thermosensitive nanoporous polymer to the wound.

23. The method of claim 22, wherein the therapeutic agent is a drug, an antibiotic, an anti-inflammatory agent, a clotting factor, a hormone, a nucleic acid, a peptide, a cellular factor, or a ligand for a cell surface receptor.

24. The method of claim 22, wherein the therapeutic agent is a drug or an antibiotic.

25. The method of claim 22, wherein the therapeutic agent is a wound healing accelerator.

26. A method of delivering a cell to a graft site comprising:

culturing the cell on a thermosensitive nanoporous polymer; and

placing the polymer comprising the cell onto the graft site.

27. The method of claim 26, further comprising:

reducing the temperature of the thermosensitive nanoporous polymer to facilitate removal of the polymer; and

removing the polymer from the graft site.

28. The method of claim 27, wherein the step of reducing the temperature is performed after placing the thermosensitive nanoporous polymer carrying the cell onto the graft site.

29. A thermosensitive nanoporous polymer when prepared by the process of any one of claims 1 to 20.

30. A thermosensitive nanoporous membrane when prepared by the process of claim 13.

31. A thermosensitive polymer which is nanoporous.

32. The thermosensitive nanoporous polymer of claim 31 having a decomposition temperature of at least about 300°C.

33. The thermosensitive nanoporous polymer of claim 32 having a water vapour transmission rate of about 500 to about 2000 $g/m^2/day$.

34. The thermosensitive nanoporous polymer of claim 33 having a tensile strength of about 4 to about 20 MPa.

35. The thermosensitive polymer of claim 34 formed from a microemulsion comprising a first monomer capable of forming a thermosensitive polymer and a polymerizable surfactant.

36. The thermosensitive nanoporous polymer of claim 35 wherein the first monomer

is *N*-isopropylacrylamide.

37. The thermosensitive nanoporous polymer of claim 36 wherein the polymerizable surfactant is ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate or fluronic68-diacrylate.

38. The thermosensitive nanoporous polymer of claim 37, wherein the microemulsion comprises *N*-isopropylacrylamide, methyl methacrylate, 2-hydroxyethyl methacrylate, ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, water and ethylene glycol dimethacrylate in a ratio of approximately 20:10:10:35:23:2.

39. The thermosensitive nanoporous polymer of claim 37, wherein the microemulsion comprises *N*-isopropylacrylamide, methyl methacrylate, 2-hydroxyethyl methacrylate, ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, water and ethylene glycol dimethacrylate in a ratio of approximately 10:10:20:35:23:2.

40. The thermosensitive nanoporous polymer of claim 37, wherein the microemulsion comprises *N*-isopropylacrylamide, methyl methacrylate, 2-hydroxyethyl methacrylate, ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, water and ethylene glycol dimethacrylate in a ratio of approximately 7.5:7.5:15:35:33:2.

41. The thermosensitive nanoporous polymer of claim 37, wherein the microemulsion comprises *N*-isopropylacrylamide, methyl methacrylate, 2-hydroxyethyl methacrylate, ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, water and ethylene glycol dimethacrylate in a ratio of approximately 10:20:10:35:23:2.

42. The thermosensitive nanoporous polymer of claim 37, wherein the microemulsion comprises *N*-isopropylacrylamide, methyl methacrylate, 2-hydroxyethyl methacrylate, ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, water and ethylene glycol dimethacrylate in a ratio of approximately 25:10:5:35:23:2.

43. The thermosensitive nanoporous polymer of claim 37, wherein the microemulsion

comprises *N*-isopropylacrylamide, 2-hydroxyethyl methacrylate, ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, water and ethylene glycol dimethacrylate in a ratio of approximately 30:10:35:23:2.

44. The thermosensitive nanoporous polymer of claim 37, wherein the microemulsion comprises *N*-isopropylacrylamide, methyl methacrylate, 2-hydroxyethyl methacrylate, ω-methoxy poly(ethylene oxide)$_{40}$ undecyl α-methacrylate, water and ethylene glycol dimethacrylate in a ratio of approximately 10:25:5:35:23:2.

45. The method of claim 28 wherein the graft site is the round window membrane of the ear of a subject or cornea.